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ABSTRACT

Virginia Polytechnic Institute and State University implemented a pass-fail grading system two years ago. The procedure in use appears to be working smoothly and suffers little abuse. Aside from physical education, courses taught under this system primarily are taken by seniors. The number of courses elected for pass-fail grading is small: 3.3 percent of total grades. Primary results indicate the students taking courses on pass-fail performed better in quarterly grade average than other students. Studies of students exercising this option show that the number of courses authorized to be taken is usually limited: (a) by number of courses allowed, and (b) by year of student. Results from extensive surveys at Princeton and the University of Southern Illinois indicate that students suffer some loss in motivation in their pass-fail courses, and possibly as a result they learn somewhat less. While students who have a pass- fail option will take a few additional courses which they might otherwise have missed, still a willingness to explore and try new areas is not assured by pass-fail grading. (Author/HS)

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PASS - FAIL GRADING

A pass-fail system is a grading scheme in which two levels of grading exist, a Pass (P) for acceptable work and Fail (F) for unacceptable work. This system has been primarily advocated by those feeling that it encourages students to take courses outside their field of study to gain additional knowledge without fear of lowering their grade point average. Others believe this grading procedure lowers motivation, decreases information for further decision making, and is susceptible to student abuse as an "easy way out."

The purpose of this study is to review the pass-fail system at Virginia Polytechnic Institute and State University and several other universities. Types of programs, student opinions, and student performance are reported.

Part I: Pass-Fail Grading at Virginia Polytechnic Institute and State University

The pass-fail grading system in Virginia Polytechnic Institute and State University was implemented during September, 1969. The policy, as established for this University, proscribes the following:

> The pass-fail option shall be available to all undergraduate students who have completed 45 credit hours or more and have an accumulative quality credit average of 2.25 or better. A student may choose to take on a pass-fail grading system up to ten percent of the total requirements for graduation, to be chosen from his elective courses and any courses which may be required by a department and offered only on a pass-fail basis. Any courses taken beyond the number of hours required for graduation may also be taken on the pass-fail option.
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> Under the pass-fail grading system a "P" shall be granted for earning a "D" or better in the course. Otherwise an "F" shall be given. The "P" or "F" will be recorded on the students transcript and credit will be given if the course is passed, but the QCA will remain unaffected in either case. Once credit is received for a course taken on pass-fail, the course cannot be repeated under the A - F grading system. Any course to be taken under the pass-fail option must be so designated upon request for the course. Once registration for a course is complete the grading system designated is not to be changed.

In a review of the pass-fail system at the University in Fall Quarter 1970, it was found that 1,958 grades were recorded under this plan. Since there were 64,834 total grades awarded during the quarter, this meant that 3 percent were taken on a

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This report prepared by Pat Delohery and Gerald McLaughlin.

pass-fail basis. Of the 1,958 pass-fail grades, the large majority (1,290 or 66 percent) were recorded for students taking courses in health and physical education.

Another review of the numbers of registrants in pass-fail courses for the Winter Quarter of 1970-71 indicated a minor rise to 3.3 percent of total grades. (Number of pass-fail courses, 2,049; total grades in University, 61,903) Seeking to find if students registered for pass-fail credit were qualified in terms of the requirements stated above, a careful review was made of the class standing and grade average of the students. This check showed 97.7 percent eligible--the remainder slipped through the administrative procedure without the proper requirements.

In order to undertake additional analyses, a random sample was obtained, using a random number table, of students taking pass-fail courses (excluding health and physical education) and another group obtained of students with sophomore or higher class standing. While a complete review on this study is on file in the Office of Institutional Research, suffice it to say here that the following results emerged from the sample:

1. Of the students taking pass-fail courses, two-thirds are seniors.

2. The average cumulative grade average of students taking pass-fail hours and the grade average for the quarter are significantly higher ($<.01$) than for students in the other group. (Since the grade average requirements for eligibility are restrictive, the above finding is to be expected.)

3. There is an indication that the pass-fail group performed better than the other group in quarterly grade average. This superiority continues to exist when the groups are equated to consider only those eligible to take pass-fail, and when college of enrollment, academic level, and cumulative average grades are taken into consideration.

4. Students in the pass-fail group take significantly ($<.05$) more hours than students in the other group.

In brief, the number of courses in which pass-fail grades are given, 3.3 percent, represent a small fraction of total grades. Those taking this option are usually eligible for it. Seniors exercise the option more than students at the other levels.

The pass-fail system, however, has a caveat emptor of which both students and faculty advisors should be aware. In brief, graduate and professional schools look askance at these courses during their admission procedures--the same applies for undergraduate transfers.

John Perry Miller, Dean of the Graduate School of Yale University, cautions that the extreme selectivity of major graduate schools is such that too many courses taken for this credit may be prejudicial to the admission of an applicant. Miller, however, does not specify what is too much.[1] Graduates at the University of California at Santa Cruz, where most courses are given on a pass-fail basis, apparently obtain admission eventually

[1]Miller, "Pass-Fail and Admission to Graduate School," Under the Tower, n.d.

to graduate schools, although not necessarily to their first choice, but after admission the prospect for fellowships appears poor.[2] The inability to compete initially for fellowships thus becomes another factor to be considered. It would appear reasonable to state that courses for pass-fail credit do not limit access to good graduate schools, but the applicant will undergo a careful review on all evidence he submits for graduation.

Part II: Pass-Fail Grading in Other Universities

The current "non-graded" programs vary along the constructs of impact of "P" or "F" on grade point average, student eligibility, subject eligibility, and maximum number of acceptable "non-graded" hours. At present, there are two schools of thought concerning the appropriate result of a pass-fail grade on a grade point average. In one system the pass-fail grade does not affect the student's grade point average: either a P or an F are recorded but neither grade affects the overall average for a student. This system is used in such universities as Ohio State, Stanford, and California at Berkeley.

The second school of thought wants the F (fail) grade counted in the grade average of a student. In this system the grade of F is averaged with other A - F grades and lowers the G.P.A. Schools that use this concept include Syracuse, Penn State, and Lehigh.

As might be expected, eligibility to take courses for pass-fail credit ranges widely--from freshman to graduate levels. At California Institute of Technology, all freshman courses are taught on a pass-fail basis, whereas all upper level courses (with one exception) are taught on an A - F system. At the other end of the spectrum, Ohio State University allows only seniors, graduate students, and professional students to choose pass-fail grading options in certain selected courses.

The number of acceptable pass-fail hours which may be taken during a term varies from little if any restriction to one such course per term at Tufts, Lehigh, Stanford, and Princeton. At Princeton an additional limitation specifies that if the pass-fail option is not used during the term, the option is lost.

The subjects permitted under the pass-fail system range from selected courses to any course outside the student's declared curriculum. The most common regulations allow a student to take any course outside of his declared major. Universities having this regulation include Syracuse, Pennsylvania State, Princeton, and University of California at Santa Cruz. Ohio State limits the subject matter to "certain courses . . . in selected schools."[3] The procedures followed in Ohio State and Tufts allow a student to take a pass-fail option on courses within his curriculum with the consent of his advisor.

Two major surveys review student perceptions of pass-fail grading option at Princeton[4] and at Southern Illinois.[5] In reviewing data from the two studies, the reader should

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[2]Jonathan R. Warren, "Current Grading Practices," Research Report No. 3, January 15, 1971, American Association for Higher Education.

[3]Raymond G. Hewitt, "The Status of Pass/Fail: Options at Twenty-Two Colleges and Universities," Office of Institutional Studies, University of Massachusetts

[4]Marvin Karlins, Martin Kaplan, and William Stuart, "Academic Attitudes and Performance as a Function of Differential Grading Systems: An Evaluation of Princeton's Pass-Fail System." The Journal of Experimental Education, 37 (3) 38-50, 1969.

[5]John R. Reiner and Loren B. Jung, "An Evaluation of the Experimental Pass-Fail Grading System in Southern Illinois University at Carbondale," Office of Institutional Research, Southern Illinois University, September, 1970.

be aware that students conducted the survey at Princeton, and that before starting they obtained a promise that the results would not affect the existing system. The survey in Southern Illinois was conducted by a research agency of that University but a similar promise was not made.

The reason most often expressed for allowing the pass-fail system is that students will be encouraged to explore areas outside of the declared major which they might avoid if the grade point average would be affected. At Princeton although 87 percent of the students thought that the University had adopted a pass-fail option for such a reason, only 28 percent elected pass-fail graded courses for that reason. Thirty-five (35) percent took pass-fail courses "to reduce the tension of, and the emphasis on course grades." Thirty-seven (37) percent took pass-fail courses "to provide additional study time for other courses and/or extracurricular activities." At Southern Illinois 53 percent took pass-fail courses because "the subject matter of the course was unfamiliar." Additional information on the success of this goal is obtained from responses to the question: If pass-fail had not been available, would you have taken the course anyway? Sixty-eight percent of the students at Princeton stated they would have taken the course on an A - F system; at Southern Illinois University 61 percent said that they would have enrolled.

Parenthetically it might be added that in a survey of a random sample of 424 graduating seniors at The University of Tennessee slightly over half (52 percent) stated that they had not taken certain desired courses for fear of lowering grade-point averages. These students thought that given the opportunity of a pass-fail option, they would have taken in excess of two additional courses.[6]

It would appear that one reason students like the pass-fail grading option is to avoid the stress of an A - F grading procedure, especially in unfamiliar curriculum. But other reasons without doubt cause students to select the pass-fail option.

The use of pass-fail grading had about the same impact on overall motivation to achieve in courses at both Princeton and Southern Illinois.

Changes of Motivation Under Pass-Fail

	Princeton	Southern Illinois
Increase	13%	11%
No Change	63%	64%
Decrease	24%	25%

While about one-half (51 percent) of the Southern Illinois students reported that grades stimulated them to work harder, slightly over one-half (57 percent) reported that they "tried to do as well gradewise in my pass-fail course as in my regular graded courses." They felt that pass-fail courses gave them more time to study for other courses (76 percent).

In terms of classroom work, the Princeton students reported that graded classes held their interest better (70 percent vs. 57 percent), and they attended more of the lectures (85 percent vs. 74 percent). While 13 percent of the Southern Illinois students would have attended more lectures, this amount could shift attendance patterns about the same amount as at Princeton, depending on the initial levels of attendance. The major perceived change reported by the Southern Illinois group was that over one-half felt that they would have studied harder for quizzes (56 percent) in an A - F course.

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[6]"Pass/Fail Grading," Teaching-Learning Issues, Fall, 1967 (Learning Resources Center, University of Tennessee, Knoxville)

In terms of motivation, therefore, both groups agree that there is a somewhat less motivation when taking pass-fail courses. This lowered motivation is reflected in slightly lower attendance patterns, in attention to materials, and in studying for examinations, although the student may try to do "as well gradewise."

Another concept and an important one in reviewing the pass-fail option is "Does the student learn less in a pass-fail course?" The two student groups disagreed on this question.

Amount of knowledge learned in a
pass-fail course relative to regular course

	Princeton	Southern Illinois
Much more	0	20%
More	7%	11%
The same	45%	72%
Less	41%	9%
Much less	7%	6%

This difference emerges even more markedly in responses to a question of which type of system causes the student to work closer to his capacity.

	Princeton	Southern Illinois
Numerically graded	72%	11%
Equally	26%	30%
Pass-Fail	2%	58%

The faculty at Southern Illinois reported that the student on a pass-fail option showed adequate interest but tended to be a little less well prepared and somewhat less prone to do as much work as other students.

There are several reasons why the pass-fail system might appear to be more successful at Southern Illinois University than at Princeton. Among these reasons might be the amount of extraneous pressure, the content of pass-fail courses, and the overall acceptance of class competition. Another reason might be that, as previously noted, the students at Princeton were promised that no negative changes would occur because of the survey. At Southern Illinois no assurances were made.

There was a high level of agreement among respondents from both universities that the use of pass-fail courses is desirable from the point of view of the students. Continuation of the system was desired by 92 percent of the students at Princeton. Expansion of the option to include more courses was desired by 84 percent of the students at Southern Illinois University. In addition, only 12 percent of the faculty at Southern Illinois felt that the option should be abolished while 49 percent felt it should be expanded to include more courses.

Performance data were reported on pass-fail students in both studies. The students at Princeton exercising their pass-fail option did not have a higher yearly grade-point average than comparable students not taking pass-fail courses. In addition, the students obtained higher yearly average grades than they obtained in the pass-fail course.

In the study at Southern Illinois it was found that students taking a course for pass-fail credit did not perform as well on examinations as those taking the same course for an A - F grade. A reanalysis of the data shows that the students' mean performance in their courses for pass-fail credit was significantly lower than expected from prior performance.

A review of several years of experimentation at the California Institute of Technology reveals that a pass-fail system can produce desirable effects including an increase of self-motivation and retention of outstanding students. Studies there indicate that some students only worked hard enough "to get by" and some were apparently confused when they did not get rewards in terms of specific grades.[7]

These reports point out that students under the pass-fail option will generally not study as hard for tests as those under an A - F option. Of course, there remains the unanswered question of the relationship between knowledge and test scores. Students like the pass-fail option and will utilize it when open to them. Whether pass-fail options actually help or harm grade averages remains an area where additional research is needed.

7"Pass/Fail Grading"